

## **IN THE CLAIMS**

Claim 1 has been amended as follows:

1. (Currently amended) A method for determining a moisture content of air comprising the steps of:

during a calibration procedure, introducing an air sample into an acoustic analyzer;

in said acoustic analyzer, interacting acoustic energy with the air sample to obtain acoustic velocity-related information from the air sample;

in said acoustic analyzer, determining compositional information for at least one of oxygen and nitrogen in said air sample using said acoustic velocity-related information;

in said acoustic analyzer, determining a deviation of said compositional information from expected compositional information for dry air; and

during a measurement procedure following said calibration procedure, introducing an oxygen/air gas sample into the acoustic analyzer;

in said acoustic analyzer, interacting acoustic energy with the oxygen/air gas sample to generate further acoustic velocity-related information for said oxygen/air gas sample;

in said acoustic analyzer, determining further compositional information for an oxygen content of said oxygen/air gas sample using said further acoustic velocity-related information and said moisture content value calculated for said air sample; and

in said acoustic analyzer, calculating a moisture content value for the air sample from said deviation.

Claim 2 has been amended as follows:

2. (Currently amended) A method as claimed in claim 1 comprising,  
in said calibration procedure:

introducing a sample of said dry gas into said acoustic analyzer, said dry gas  
sample having a known composition of at least one constituent gas;

in said acoustic analyzer, interacting acoustic energy with said sample of said  
dry gas for obtaining further acoustic velocity-related information for  
said sample of said dry gas;

in said acoustic analyzer, determining further compositional information for  
said at least one constituent gas in said sample of said dry gas using  
said further acoustic velocity-related information; and

in said acoustic analyzer, calculating a calibration value dependent on a  
deviation of said further compositional information from said known  
composition, and using said calibration value in the calculation of said  
moisture content value.

3. (Original) A method as claimed in Claim 2 wherein the step of  
introducing a sample of said dry gas into the acoustic analyzer comprises introducing  
oxygen into the acoustic analyzer as said sample of said dry gas.

Claim 4 has been cancelled.

4. (Cancelled)

Claim 5 has been amended as follows:

5. (Currently amended) A mechanical breathing aid comprising:  
a first inlet adapted for connection to a source of air;  
a second inlet adapted for connection to a source of oxygen;  
a mixing location in gaseous communication with said first and second inlets  
at which controlled amounts of air and oxygen from the respective first  
and second inlets are mixed to form a breathing gas; and  
an acoustic analyzer having access to a moisture content value for air from  
said source of air, said acoustic analyzer emitting acoustic energy into  
said breathing gas and, from interaction of said acoustic energy with  
said breathing gas, obtaining acoustic velocity-related information from  
said breathing gas, said acoustic analyzer determining an oxygen  
content value of said breathing gas from said acoustic velocity-related  
information, and, during a calibration procedure, obtaining further  
acoustic velocity-related information by interacting acoustic energy with  
air from said source of air and, from said further acoustic velocity-  
related information, determining an oxygen content value for the air  
and, from said oxygen content value for the air, calculating a the  
moisture content value for the air.